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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,278	06/10/2005	Alan G. Knapp	GB02 0219 US	9240
24738 7590 10/12/2007 PHILIPS ELECTRONICS NORTH AMERICA CORPORATION INTELLECTUAL PROPERTY & STANDARDS 370 W. TRIMBLE ROAD MS 91/MG SAN JOSE, CA 95131				
			EXAMINER CHOWDHURY, AFROZA Y	
			ART UNIT 2629	PAPER NUMBER
			MAIL DATE 10/12/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/538,278

Applicant(s)

KNAPP ET AL.

Examiner

Afroza Y. Chowdhury

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/10/2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 12, line, "capacitive display element".

Drawings

3. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "**display element 16**". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claim 1, line 6 is objected to because of the following informalities: **"the or each common electrode contact"** should be **"each of the common electrode contact"**.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3 and 6-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant Admitted Prior Art (AAPA)** in view of **Akihiro et al.** (JP 2000-066837).

As to claim 1, AAPA teaches a touch sensitive display device comprising an array of capacitive display element pixels (fig. 1, 1st - 3rd paragraph in description),

each display element (fig. 1(16)) being associated with a pixel circuit including a pixel storage capacitor (fig. 1(20)),

each display element (fig. 1(16)) being connected at a first terminal to the storage capacitor (fig. 1(20)),

wherein the device further comprises one or more common electrode contacts (fig. 1(18)),

each common electrode contact (fig. 1(18)) being connected to a second terminal of a plurality of the display elements (fig. 1, 3rd paragraph in description).

AAPA does not explicitly teach a charge measurement means for measuring a flow of charge to the common electrode contact.

Akihiro et al. discloses a pressure detecting digitizer wherein each common electrode contact is individually connectable to a charge measurement means (drawing 3(Qi), judgment circuit) for measuring a flow of charge to the common electrode contact (fig. 1(Q1-Qn), [0018], [0021] – [0023]).

Therefore, it is obvious to one skill in the art at the time of the invention was made to incorporate judgment circuit of Akihiro et al. into the display device of AAPA to make a touch sensitive display device in order to measure a flow of charge due to applied pressure while maintaining the normal display drive.

As to claim 2, AAPA teaches a device where a plurality of common electrode contacts are provided (3rd paragraph in description).

As to claim 3, AAPA (as modified by Akihiro) teaches a common electrode (fig. 1(18)) and charge measurement (fig. 3(Qi) of Akihiro), but failed to teach the connection of these two. However, it is a design choice to have a device wherein each common

electrode contact is connected to a respective charge measurement means.

As to claim 6, Akihiro et al. discloses a device where the array of display element pixels is arranged in rows and columns (figs. 1 and 2).

However, it is an obvious design choice to have each common electrode contact is connected to the second terminals of the display elements of a plurality of adjacent columns of display element pixels.

As to claims 7 and 8, AAPA teaches a device wherein each row of display element pixels shares a common row conductor (fig. 1(10)) for providing a pixel address signal, and wherein the storage capacitor (fig. 1(20)) of each pixel is connected between the display element (fig. 1(16)) and the row conductor of an adjacent row of display element pixels (fig. 1(10), (16)).

As to claim 9, Akihiro et al. discloses a device where a plurality of groups of adjacent rows are defined with each group individually connectable to a charge measurement means for measuring a flow of charge to the group of row conductors (fig. 1(G1), (G2), ... (Gi)).

As to claim 10, Akihiro et al. teaches a device wherein each pixel circuit comprises a transistor (see fig. 1, fig. 3(TR)) which is addressed by a signal on a row conductor associated with a row of display element pixels (fig. 1), and which provides a

signal from a column conductor associated with a column of display element pixels to the display element (fig. 1).

As to claim 11, AAPA teaches a device wherein the capacitive display elements (fig. 1(16)) comprise liquid crystal display elements (fig. 1, 1st - 3rd paragraph in description, fig. 2(34)).

As to claim 12, AAPA teaches a method of detecting a touch input in a touch sensitive display device, the device comprising an array of capacitive display element pixels each comprising a capacitive display element (fig. 1(16), best understood as display element) and a pixel storage capacitor (fig. 1(20)), the method comprising:

applying display signals to the pixels of the array, by charging the display element of each pixel to a desired voltage through a pixel transistor (fig.1, 4th paragraph in description);

isolating each pixel by switching off the pixel transistor, and storing the voltage on the display element using the pixel storage capacitor (fig.1, 4th paragraph in description), and

AAPA teaches the charge flowing between the storage capacitor (fig. 1(20)) and the capacitive display element (4th paragraph in description, fig. 1(16) as best understood as display element).

AAPA does not explicitly teach sensing the charge flowing between the storage capacitor and the capacitive display element whilst the pixel is isolated.

Akihiro et al. discloses teaches a change in capacitance is detected as a representative of pressure applied to the liquid crystal material of the pixel (abstract, [0012]).

Therefore, it is obvious to one skill in the art at the time of the invention was made to combine the pressure detecting digitizer of Akihiro et al. with the display device of AAPA to make a touch sensitive display device to detect pressure by sensing the charge flowing between the storage capacitor and the capacitive display element.

As to claim 13, Akihiro et al. teaches a method wherein the sensing is carried out by monitoring the charge flowing to a terminal of the capacitive display element (abstract, [0011]) – [0014]).

As to claim 14, Akihiro et al. teaches a method where the charge flowing to a terminal of a plurality of display elements is monitored, the plurality of display elements sharing a common contact and comprising a column or columns of display elements (fig. 1, [0011]) – [0014]).

As to claim 15, Akihiro et al. teaches a method wherein the sensing is carried out by also monitoring the charge flowing to a terminal of the pixel storage capacitor (abstract, [0011]) – [0014]).

As to claim 16, Akihiro et al. discloses a method where the charge flowing to a terminal of a plurality of pixel storage capacitors is monitored, the plurality of pixel storage capacitors sharing a common contact and comprising the pixel storage capacitors of a row or rows of pixels (fig. 1, [0011]) – [0014]).

As to claim 17, AAPA teaches a touch sensing display; but doesn't specifically teach the structure.

However, it is inherent for a touch sensitive display device that a subset of the pixels of the array are used for touch sensing and display, the remaining pixels being used only for display.

As to claim 18, AAPA teaches a touch sensitive display. AAPA is silent that the static image subset of pixels.

However, it is inherent for touch sensitive display to provide substantially static images to the subset of pixels of a touch sensitive display device.

As to claim 19, Akihiro et al. teaches a method wherein the subset comprises a plurality of rows of pixels (fig. 1).

As to claim 20, AAPA discloses a touch sensing display but failed to teach whether display data for a subset is repeated.

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However, it is obvious for a display device wherein display data for the subset is repeated, and touch sensing is performed in the first or in a subsequent repetition, if the area is touch repeatedly

As to claim 21, AAPA teaches a touch sensitive display. AAPA does not specifically teach having different subset for different frames.

However, it is obvious for a display device to have different subsets for different frames, when the area is touched in a different interval.

8. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant Admitted Prior Art** (AAPA) in view of **Akihiro et al.** (JP 2000-066837) and in further view of **Ruetten et al.** (US Pub. 2002/0181648).

As to claim 4, AAPA (as modified by Akihiro et al.) teaches a touch sensitive display with detection pulse generating circuit ([0018], in Akihiro et al.).

AAPA (as modified by Akihiro et al.) does not explicitly teach a device wherein each charge measurement means comprises a charge sensitive amplifier.

Ruetten et al. teaches an image detector where each charge measurement means comprises a charge sensitive amplifier (fig. 2A(36), [0042], [0046]).

Therefore, it is obvious to one skill in the art at the time of the invention was made to incorporate the idea of Ruetten et al. of using charge sensitive amplifier into the display device of AAPA (as modified by Akihiro et al.) to make a charge sensitive

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display device wherein each charge measurement means comprises a charge sensitive amplifier in order to obtain image of desired contrast.

As to claim 5, AAPA (as modified by Akihiro et al. and Ruetten et al.) teaches a touch sensitive display with charge sensitive amplifiers (fig. 2A(36), [0046] in Ruetten et al.) and common electrode at some potential (fig. 2A(30), [0046] in Ruetten et al.).

AAPA (as modified by Akihiro et al. and Ruetten et al) does not explicitly teach a device wherein each charge sensitive amplifier connects the common electrode contact to a virtual earth potential.

However, it is an obvious choice to make touch sensitive device where each charge sensitive amplifier connects the common electrode contact to a virtual earth potential in order to obtain desire image.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Afroza Y. Chowdhury whose telephone number is 571-270-1543. The examiner can normally be reached on 7:30-5:00 EST, 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

9/28/2007



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